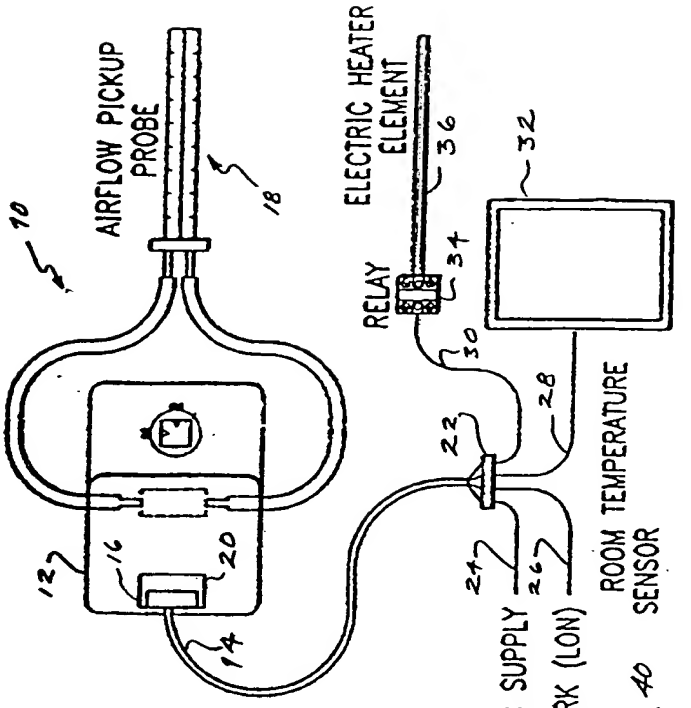

10
AIRFLOW PICKUP PROBE
18
ELECTRIC HEATER ELEMENT
36
32
RELAY
34
30
28
23
21
26
24V AC SUPPLY
ROOM TEMPERATURE SENSOR
LOCAL OPERATING NETWORK (LON)
40
12
16
20
14

FIG. 1

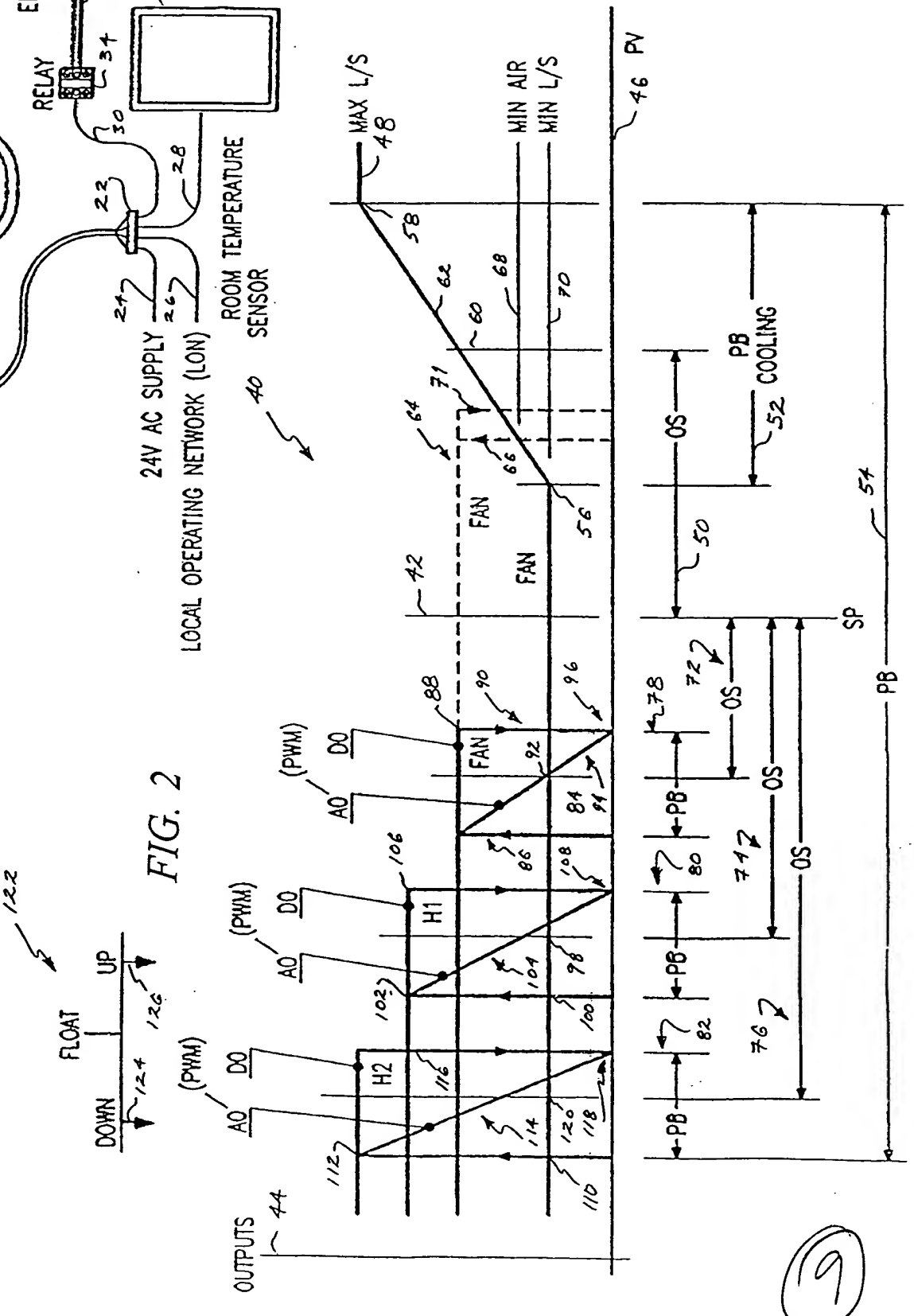

MAX L/S
48
MIN AIR MIN L/S
46 PV
58
62
60
68
70
64
71
66
56
FAN
FAN
42
50
PB COOLING
52
OS
54
SP
PB
122
FLOAT
UP
DOWN
124
126
DO
AO
(PWM)
H1
H2
88
90
92
96
86
84
94
106
108
104
102
98
100
116
114
120
118
112
110
OUTPUTS
44
78
72
80
74
82
76

FIG. 2

(9)

FIG. 3

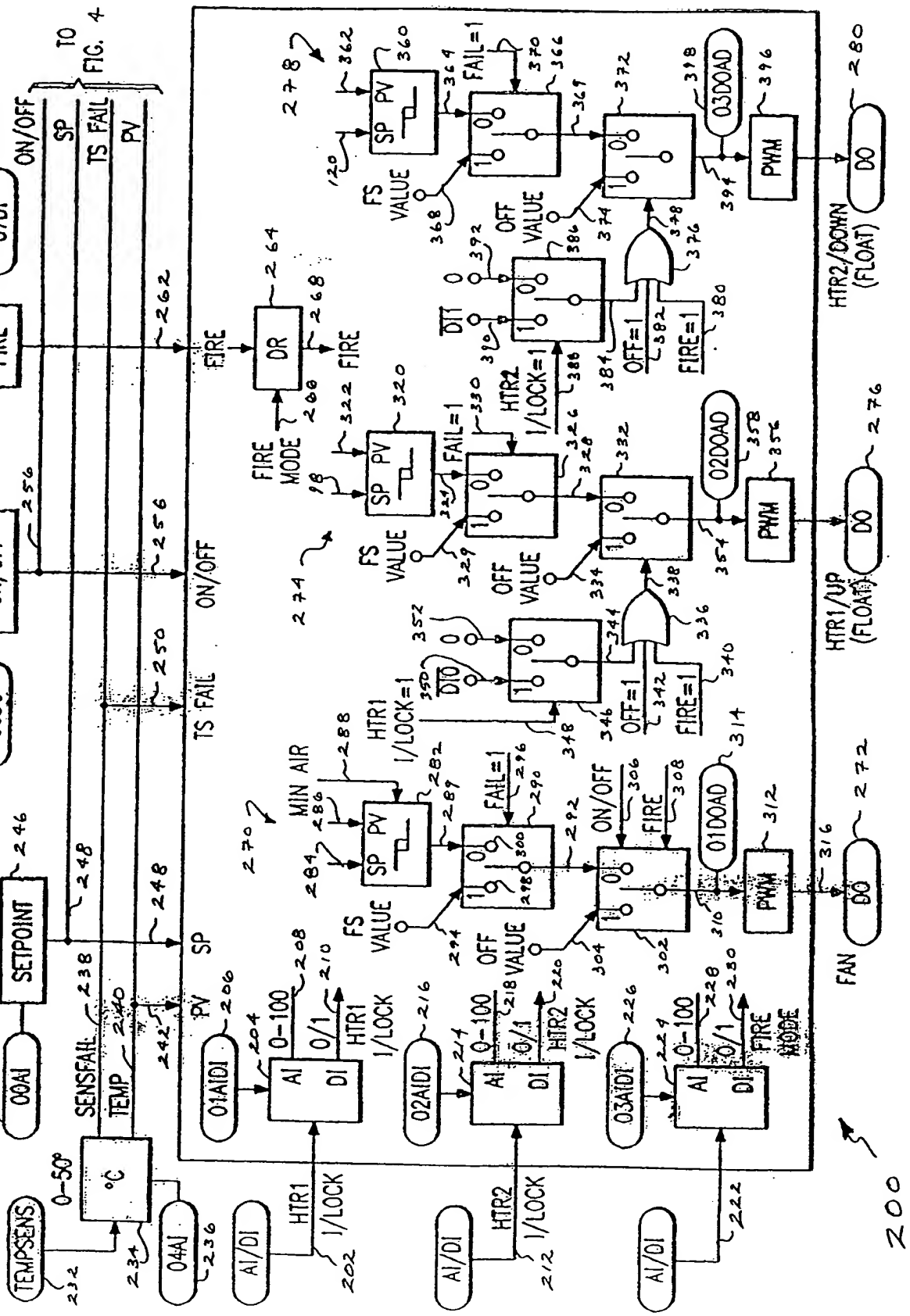
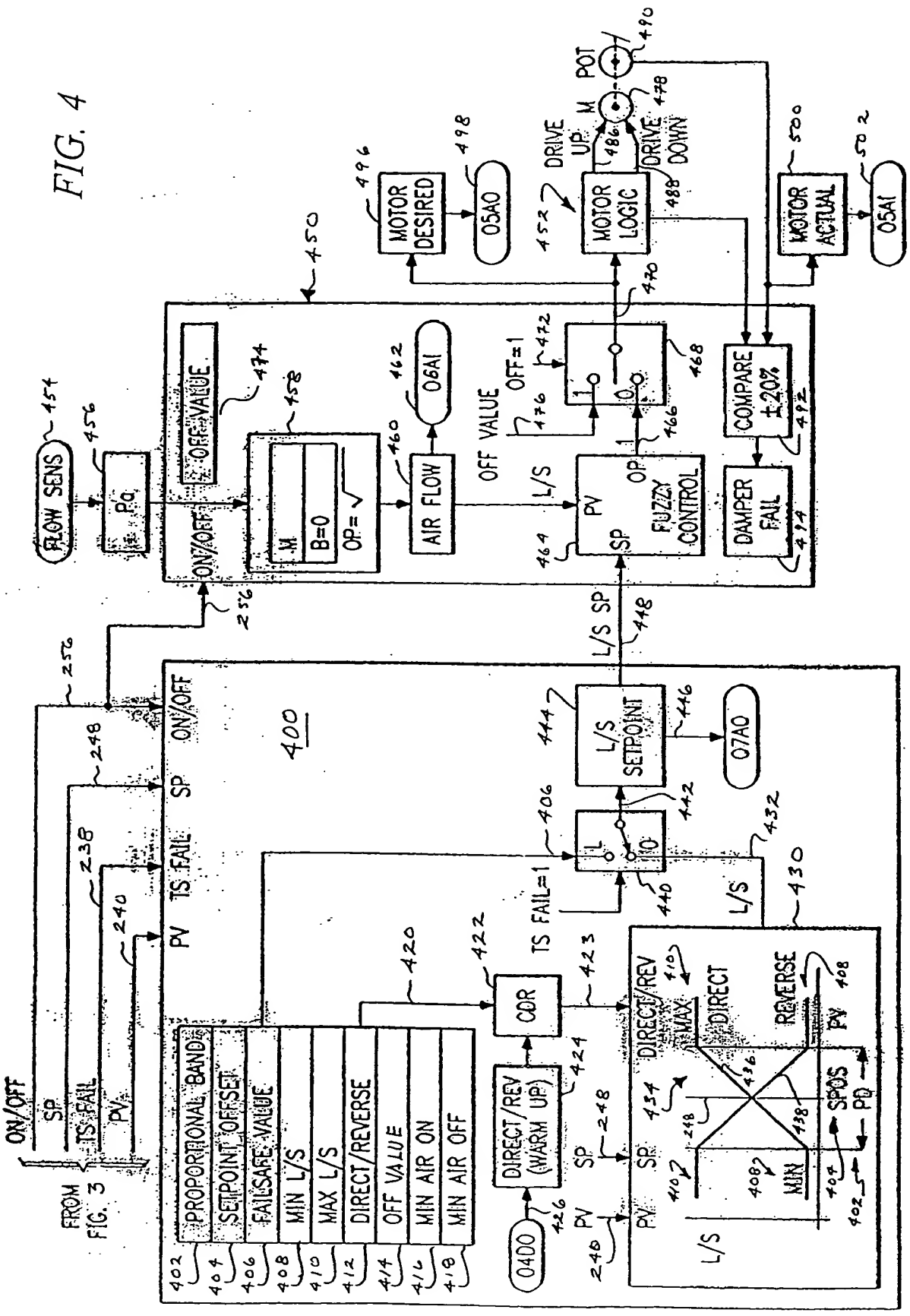

TO FIG. 4
ON/OFF
SP
TS FAIL
PV
FIRE
SETPOINT
SENSFAIL
TEMP
TEMPSENS
0-50°
°C
00AI
04AI
00DO
07DI
01AIDI
02AIDI
03AIDI
01DOAD
02DOAD
03DOAD
DR
FIRE MODE
FS VALUE
OFF VALUE
HTR1 I/LOCK
HTR2 I/LOCK
MIN AIR
DTO
DTT
FAIL=1
OFF=1
FIRE=1
PWM
FAN
HTR1/UP (FLOAT)
HTR2/DOWN (FLOAT)
AI/DI
SP PV
0-100
0/1
200

FIG. 4


ON/OFF
SP
TS FAIL
PV
FROM FIG. 3
PROPORTIONAL BAND
SETPOINT OFFSET
FAILSAFE VALUE
MIN L/S
MAX L/S
DIRECT/REVERSE
OFF VALUE
MIN AIR ON
MIN AIR OFF
402
404
406
408
410
412
414
416
418
400
ON/OFF
SP
TS FAIL
PV
238
240
248
256
0400
PV
SP
426
DIRECT/REV (WARM UP)
424
CDR
420
422
TS FAIL=1
423
L
IO
406
442
440
L/S SETPOINT
444
446
07AO
L/S SP
448
L/S
432
430
DIRECT/REV
MAX
410
DIRECT
REVERSE
408
PV
SR
SP
434
248
436
438
SPOS
PO
L/S
MIN
402
404
406
FLOW SENS
454
456
PQ
ON/OFF
OFF VALUE
458
474
M
B=0
OP=√
460
AIR FLOW
462
06AI
OFF VALUE
L/S
464
PV
SP
FUZZY CONTROL
OP
466
1
0
OFF=1
472
476
468
COMPARE ±20%
492
DAMPER FAIL
494
450
MOTOR DESIRED
496
498
05AO
DRIVE UP
452
MOTOR LOGIC
488
M
POT
490
486
DRIVE DOWN
478
MOTOR ACTUAL
500
502
05AI
470

	x	y	z
PB	-100	-100	50
	-40	-100	
	-10	100	
	0	-100	
	10	-100	
PM	-100	-40	25
	-40	-40	
	-10	-40	
	0	-40	
	10	-40	
	40	-100	
PS	-100	-10	10
	-40	-10	
	-10	-10	
	0	-10	
	10	-10	
	40	-10	
	100	-10	
	-100	0	
	-40	0	
	40	-40	
	100	-40	
	100	-100	
ZE	-10	0	7
	0	0	7
	10	0	7

	x	y	z
NB	100	100	50
	40	100	
	10	100	
	0	100	
	-10	100	
NM	-40	100	25
	-10	40	
	0	40	
	10	40	
	40	40	
	100	40	
NS	40	0	10
	100	0	
	-100	10	
	-40	10	
	-10	10	
	0	10	
	10	10	
	40	10	
	100	10	
	-100	40	
	-40	40	
	-100	100	

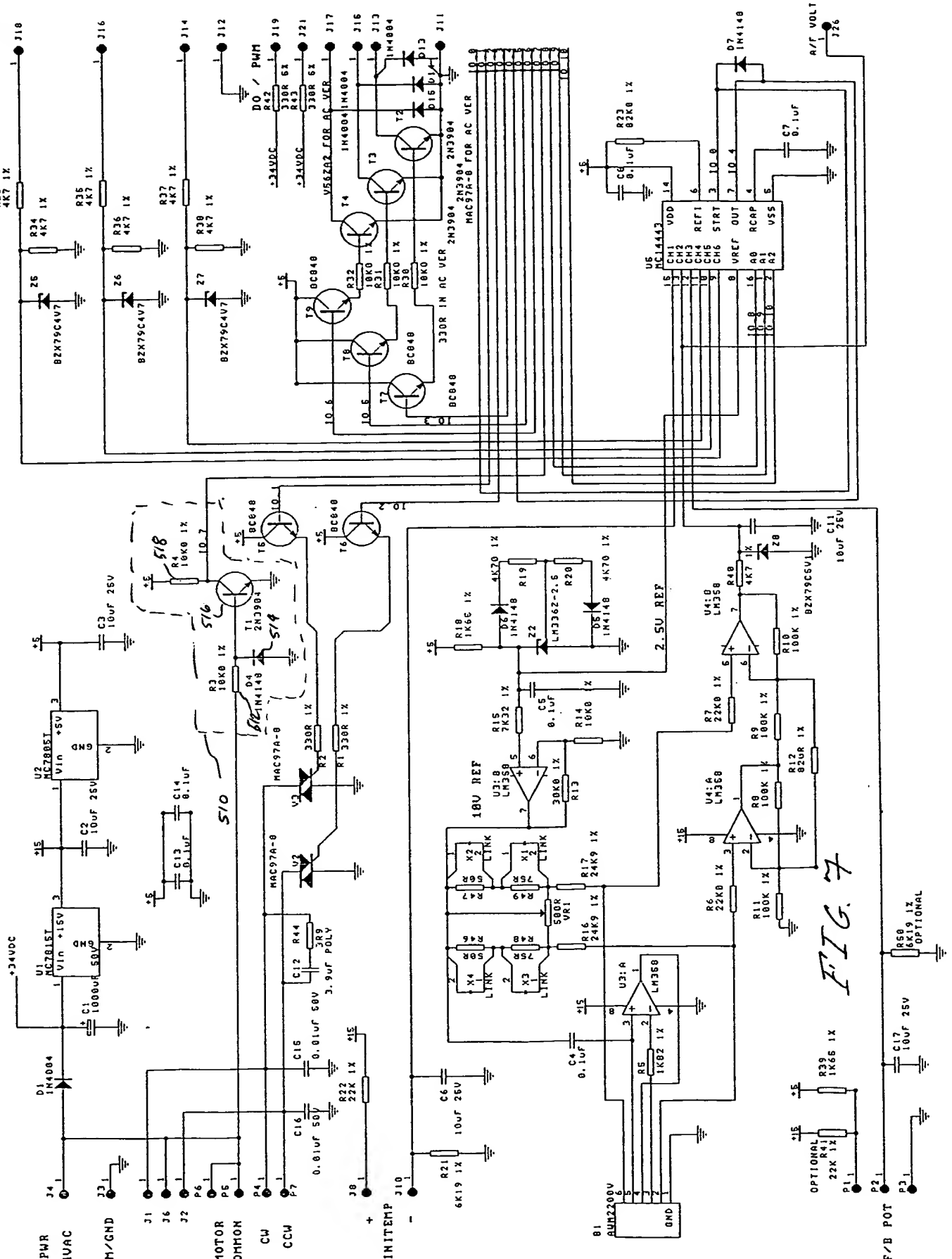
FIG. 5

← FLOW ERROR

x

				-100	-40	-10	0	+10	+40	+100
				NB	NH	NS	ZE	PS	PM	PB
		-100	NB	PB	PB	PB	PB	PB	PM	PS
		-40	NH	PM	PM	PM	PM	PM	PS	PS
FLOW	↑	-10	NS	PS	PS	PS	PS	PS	PS	PS
ERROR	y	0	ZE	PS	PS	ZE	ZE	ZE	NS	NS
	↓	+10	PS	NS	NS	NS	NS	NS	NS	NS
		+40	PM	NS	NS	NM	NM	NM	NM	NM
		+100	PB	NS	NM	NB	NB	NB	NB	NB

FIG. 6


DI / AI (8-5)
DO / PWM
A/F VOLT
2.5V REF
10V REF
PWR 24VAC
COM/GND
MOTOR COMMON
CW
CCW
LIMITEMP
F/B POT
+34VDC
MAC97A-8
BC848
2N3904
LM3362-2.6
LM358
MC14443
MC7805T
MC7815T
BZX79C4V7
1N4004
1N4148
AUM2200V
OPTIONAL
FIG. 7

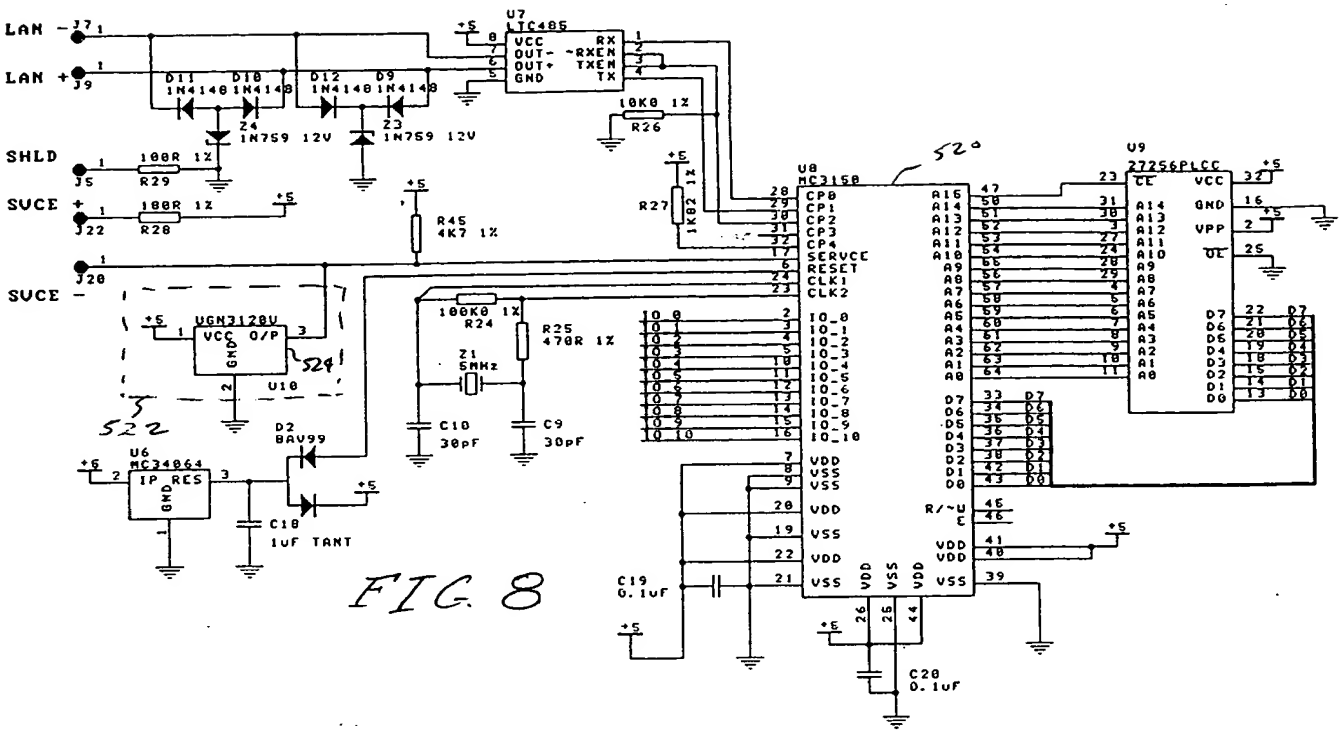

LAN -
LAN +
SHLD
SUCE +
SUCE -
J7
J9
J5
J22
J20
D11 1N4148
D10 1N4148
D12 1N4148
D9 1N4148
Z4 1N759 12V
Z3 1N759 12V
R29 100R 1%
R28 100R 1%
U7 LTC485
VCC
OUT-
OUT+
GND
RX
-RXEN
TXEN
TX
R26 10K0 1%
R27 1K82 1%
R45 4K7 1%
U8 MC3150
CP0
CP1
CP2
CP3
CP4
SERVCC
RESET
CLK1
CLK2
520
U9 27256PLCC
VCC
GND
VPP
522
U10 VGN3120V
VCC O/P GND
524
R24 100K0 1%
R25 470R 1%
Z1 5MHz
C10 30pF
C9 30pF
D2 BAV99
U6 MC34064
IP RES GND
C18 1uF TANT
C19 0.1uF
C20 0.1uF

FIG. 8

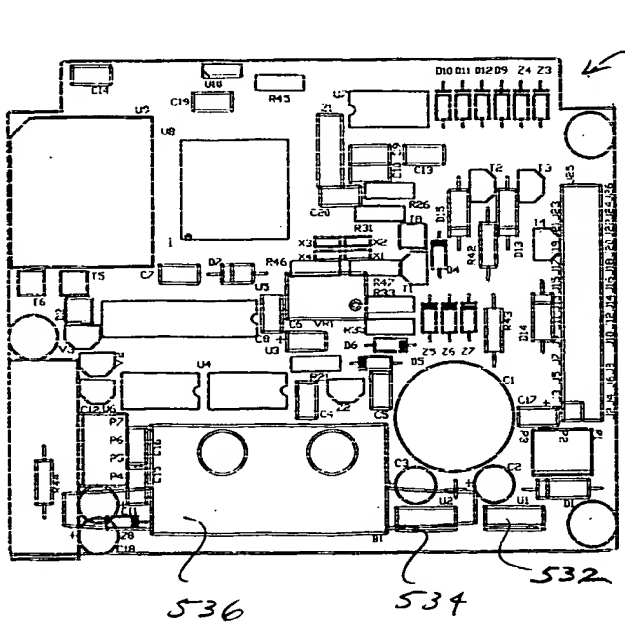

530
532
534
536

FIG. 9